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ABSTRACT

High school students in grades 8-12 participated in an experimental three-weekend camping and construction project designed to measure the personal and social growth potential of a non-risk, challenging, generative-based experience. Twenty-three students were matched and randomly assigned to either an experimental group or a control group. Students in the experimental group camped out and partially constructed a wooden structure on three successive winter weekends. Students in the control group had no significant group or challenge experience. The students were pre- and post-tested with the Tennessee Self Concept Scale (TSCS) and the Rotter Internal External Locus of Control Scale. Their academic achievement was measured by their academic grade means. As expected, results of the tests, compared between and within groups, indicated that the generative and challenging experience had no effect on academic achievement or locus of control, and no effect on 11 of 12 self-concept scales on the TSCS. A longer project might have provided subjects with a better chance to change their self-concept. More research is needed with respect to generative and challenge experiences and the quality and duration of those experiences. (SB)

THE EFFECTS OF A CAMPING/CONSTRUCTION EXPERIENCE ON THE SELF CONCEPTS, LOCUS OF CONTROL, AND ACADEMIC ACHIEVEMENT OF HIGH SCHOOL STUDENTS

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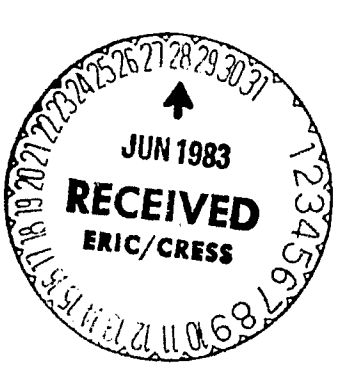

ABSTRACT

THE EFFECTS OF A CAMPING/CONSTRUCTION EXPERIENCE ON THE SELF CONCEPTS, LOCUS OF CONTROL, AND ACADEMIC ACHIEVEMENT OF HIGH SCHOOL STUDENTS

by Harold Leon Gillis, Jr.

The Tennessee Self Concept Scale, (TSCS) Rotter's Internal External Locus of Control Scale and academic grade means were utilized to measure changes in high school students participating in a three weekend camping and construction experience at the Webb School in Bell Buckle, Tennessee. The students partially completed a 6 m x 6.6 m wooden shelter on cedar poles during January, 1981.

The objective was to determine whether participation in a camping and construction experience altered the self concepts, locus of control and academic achievements of the students involved in the experience. The sample included 23 students matched and randomly assigned to either a control or experimental group. The students were from white, middle class families, were both male and female and represented the eighth through twelfth grades at the school.

The TSCS and Rotter's locus of control scale were given to experimental and control groups before and after the camping and construction experience The results were compared between and within groups and subjected to analyses of variance to determine significant differences. The grade

means of participants in the study were also examined before and after the study through analysis of variance.

The within group difference pre to post was significant for locus of control, ($p < .001$) but there was no significance between group difference. Self concept remained relatively stable between and within groups. However, a significant within group difference was noted on the identity scale of the TSCS ($p < .02$). No significant difference was noted for academic grade means.

It was concluded that, although no major changes were found as a result of the camping and construction experience, further research was needed. It was noted that the shortness of the experience may have been a primary factor affecting the results. Further measurements were contemplated to provide empirical evidence as to the effects of experiential learning programs.

ACKNOWLEDGEMENT

The experimenter wishes to express gratitude to many people who provided support, encouragement, advice and aid during the construction phase of the experience. It can easily be said that without these people, this project would not have been possible.

First, I wish to thank the Webb School in Bell Buckle, Tennessee for the financial support and "willingness to try new things" which allowed the project to get off the ground. To Jackson E. Heffner, Headmaster, I am grateful for the support and interest in providing experiential education. To Glenn Holliman, Assistant Headmaster, I am eternally grateful for the enthusiastic support of my wild ideas, and for always pushing me to think of new ones. To the students who participated in the program, I am grateful for your patience and perserverence in seeing the project to completion.

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I am very grateful to Myra Harrill for critically reading the very first rough draft of this thesis. I also feel very fortunate in having Dr. Keith Carlson as a thesis advisor. His experience and critical eye provided insight into the research problem and clarification of the statistical results. I wish to thank Dr. Carlson for his patience and prodding which enabled me to see this experience to the end.

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CHAPTER I

INTRODUCTION

Experientially based educational programs are said to have numerous effects on participants' lives. Most of the claims have been presented in articles and dissertations espousing philosophical doctrine and relying heavily on the work of John Dewey (1938) to substantiate their views. Empirical studies have been rare, although some programs, such as the Outward Bound challenge experiences have cited references to research articles and dissertations where authors have shown what effect experience had upon such variables as self concept, locus of control, values, anxiety, moral judgment, academic achievement, and survival ability. These studies have most often used questionnaires, self reports, checklists, journals, and standardized tests to measure the effects of Outward Bound-type challenge programs. Few studies have made use of a control group or were even able to control internal and external validity threats through design (Godfrey, 1974). In addition, no studies were found which document the effects of an outdoor experiential program, requiring work to generate a product, on participant's self concept, locus of control, and academic achievement.

Background

Since the early 1970's, experientially based programs have increased in quantity and diversity. Through its

journals and publications, the Association of Experiential Education, formed in 1977, has provided a forum for experienced-based ideas. Recently, Gibbons and Hopkins (1980) provided a scheme for rating the experiential value of experience-based programs. They hypothesized five modes with ten levels (two per mode) which are described below. In addition, they mentioned two additional scales: quality of experience and the individual's perception of experience, which can help clarify experience-based programs.

Receptive Mode. The receptive mode provides the passive receiver with vicarious experience. All forms of visual and auditory aids are used including the mediums of television, tape and camera. A teacher bringing examples into the classroom (rock samples) to facilitate the study of a lesson (geology) would be involving students in simulated experience (level one). At the second level of experience, participants are spectators. Visiting the zoo or museum is an example of spectator level experience. Here, the participants have direct sensory contact with the stimuli, but are not actively involved. Participants are merely observers. Receptive modes experiences are commonly used in traditional education, as witnessed by vast audio visual supplies in school systems and field trips taken each year by students.

Analytical Mode. The analytical mode provides the individual an opportunity to participate. Exploratory experiences (level three) contain all elements of the receptive

mode experience. However, here the individual is invited to analyze situations and make personal and/or group decisions. The experiences are open-ended. Discovery learning and creativity, key elements of exploratory experience, are part of Acclimatization (ACC). Acclimatization (Van Matre, 1972) offers participants a conceptual and emotive approach to studying the environment. Whereas a participant in spectator experience might see a frog in a natural habitat, the exploratory student would participate in an immersion experience in ACC such as walking (up to their necks) through a swamp and seeing the frog's habitat from a much different viewpoint. Traditional camping experiences are also in level three. Campers are actively involved in nature study, campcraft, swimming and skill training (e.g. horseback riding, rock climbing, canoeing). In its intense form, exploratory experiences provide survival training and simulations. Here, the participants are trained in managing stress and developing coping abilities in survival situations.

Analytical experience involves the fourth level of experience where theory is applied in real or realistic situations. Examples are field work and clinical experience. Initiative games which present a group with a physical challenge (a 3.65 m wall) and an objective (to get all participants over, safely) are good examples of analytical experiences. Initiatives are arranged such that individuals alone are helpless to complete the group objective, and

therefore the group members must help each other to successfully complete the activity. Objectives of initiatives are said to increase participants' sense of personal confidence, to increase the mutual support within a group, to develop increased joy of one's physical self, and to facilitate interactions with others (Rohnke, 1977).

Productive Mode. The productive mode offers participants a chance to actively work on a project leading to the creation of a product. This opportunity is called generative experience. The productive mode may also provide experiences where participants are challenged by an organization (Outward Bound, Inc.), or design a personal challenge experience themselves.

Generative experience (level five) includes "learning by doing" programs like Eliot Wigginton's Foxfire Fund, Inc. In producing the Foxfire Book (1972) participants in Wigginton's program interviewed and photographed local people, their crafts, and their old ways of living. The students wrote articles and developed photographs to organize copies for a final product--a book. Here, each participant was active and the experience produced a tangible result. The Foxfire idea has been replicated in many other programs (termed "cultural journalism") since its inception in the late 1960's (Durst, 1980).

The value of having an end-product is discussed by James Coleman (1980). He claims an externally valued

end-product aids in the assimilation and information processing of the participant. He further suggests that value for the participant is added to the activity because others note its worth and thus give the product external validity.

Group problem solving activities mentioned in the analytical experiences level can be used to produce generative experience. Presenting students with an initiative problem involving the construction of a building as part of an experiential learning and living experience would meet the definitions of the analytical and generative levels.

Challenge experience (level six) requires that participants are presented with a "challenging" experience (typically wilderness related) or that the participant designs a personal challenging experience. These challenges are typically designed to push students to reach beyond their present behavior and accomplish the most difficult task they are capable of handling. Risk and stress are key to challenge experience. The Outward Bound Schools are examples of level six experience. The concept was developed in England during the late 1940's to counteract "the decline of initiative associated with 'spectatoritis', the decline of physical fitness, and the decline of concern for one's neighbor" (Kesselheim, 1976, p. 30). Kesselheim (1976) goes on to say that Kurt Hahn, one of Outward Bound's founding

fathers, believed that exposure to self discipline, teamwork, adventure, physical hardship, and risk might provide participants with the opportunity to "discover themselves, experience success and defeat, forget themselves in the pursuit of a common cause, train the imagination, and develop the ability to participate and plan" (Kesselheim, 1976, p. 30).

Outward Bound expanded in the United States in the early 1960's and presently operates schools throughout the country for participants fourteen years of age and older. Each of the schools has a special emphasis related to its environment. While in the North Carolina or Colorado schools, the participant would be exposed to rock climbing; while at the Maine or Minnesota locations, sailing would be the primary emphasis. All the schools operate from a standard course outline. The following three components are included in each course: (1) training expedition--students are introduced to and have experience with skills presented by instructors (e.g. rock climbing, knots, sailing, backpacking); (2) solo experience--participants are by themselves for three days with minimal food, rough shelter, and a sleeping bag; and (3) final expedition--students (in their groups) are presented with a common goal which the entire group must complete. This experience typically involves minimal instructor supervision.

Frederick Medrick (1975) sees the following components as fundamental to the Outward Bound process: physical challenge, stress experience, problem solving, skills training, self actualization, reflection, evaluation, and service. Through these components, Outward Bound attempts to allow each participant to chance to meet the following goals: (1) personal development--identifying personal limits, acknowledging responsibility to others and clarifying needs; (2) interpersonal effectiveness--using open communication, sharing and work on common tasks; (3) environmental awareness--enhancing the ability to see one's living environment; (4) experiential learning--emphasizing active participation to provide training; and (5) values clarification--providing an atmosphere where individuals can test and refine personal values.

The Outward Bound challenge experience has provided the setting for most of the research studying the effects of experience-based programs on such variables as self concept, academic achievement, locus of control and physical fitness. These studies are further explored in a later section.

Developmental Mode. The developmental mode contains competency and mastery experience. Competency experience involves apprenticeship in a specific field of study. Competency experience (level seven) is demonstrated by a sustained effort on the part of the participant and requires

achievement of demonstrable skills. Mastery experience (level eight) involves a much greater degree of skill development, time involvement, personal commitment, and is high personal standard of quality. Here, participation is its own reward. Students in such areas as medicine, art, athletics, and business are involved in developmental mode experience in order to achieve a great degree of knowledge in their particular field. Education in this mode comes through apprenticeships and programs like Experience-Based Career Education (EBCE). Here students are actively involved in learning a skill or trade. Cosmetology, auto mechanics, and carpentry are examples of programs taught in the developmental mode of experience.

Psychosocial Mode. The highest level of experiential-based programs are in the psychosocial mode. It is the highest because the learnings have significant and lasting effects. In it, participants learn to understand themselves and are able to interact with others. According to Gibbons and Hopkins (1980), these individuals can accomplish their particular developmental tasks and then be able to make contributions to the lives of others. This final mode contains personal and social growth experience. The personal growth experience (level nine) allows the individual to gain a better understanding of self. Participants also learn to direct their lives effectively and responsibly through

personal growth experiences. Gestalt therapy is a good example for level nine since it involves active, self-exploratory experiences. The goal of personal growth experience is the pursuit of uniqueness as a person. Gestalt therapy also claims this pursuit as a goal (Zinker, 1977). Self-directed education, self-help behavioral techniques, and methods for creating positive self imagery are all examples of experiences in level nine.

Social growth experience (level ten) enables participants to become competent with interactions and relations with people of all ages. Social growth actions are done as a result of social responsibility and accomplishments are for the service of the community. Experience's highest goal according to Gibbons and Hopkins (1980) is to acquire the quality of interacting openly and affectionately with others and being an exemplary member of the community. Interaction is the key to the tenth level experience. A close, trusting relationship with at least one other person is essential. Activities allowing participants to become involved with people of all ages give rise to social growth. Tutoring younger students or working with adults on adult projects are examples of good level ten experience.

Quality of Experience. Quality of experience is only briefly defined by Gibbons and Hopkins (1980). An example given involves a participant viewing Sir Laurence Oliver's stage performance of "Hamlet". Experientially, performance

viewed would be considered a spectator experience (level two). However, the authors rate the quality of that experience a "10" on a "1-10" continuum. There does not exist a refined scale for measuring quality of experience. How well a particular experience meets the specifications of various modes of experience appears to be one function of the overall quality of that experience. It should be noted that the various levels of experience are cumulative and each level could necessarily contain kinds of experience from preceding levels. Gibbons and Hopkins (1980) appear to be saying that the more levels involved in the overall experience, the more experiential that program becomes.

In addition, quality must include the amount of time spent doing the activity. Underlying the five experiential modes is an increase in amount of time involved participating in the experience. Time spent participating increases from the receptive mode to the personal growth mode. The final factor which helps measure quality of experience applies to what actually occurs during the experience. An award winning film, externally recognized for its merit, would have a greater rating in the receptive mode, as visiting the Smithsonian Institute would in the analytical mode.

There is much research needed in the area examining the quality of experience. This lack of available research into the analysis of the many components of quality experience has been recognized by Hedin and Conrad (1980). The research

questions they propose include: analysis of the factors which underlie successful and unsuccessful learning experiences, examination of what is exactly involved in various experiential programs, who is involved in the programs, and the short-term and long-term effects of the experience on the participants. These are all areas where further research is needed.

Individual's Perception. The individual's perception of the experience and thus his capacity to respond to it, is the last rating of the overall experiential scope. Gibbons and Hopkins (1980) note that one participant may not be prepared to respond or capable of a response. They rate this participant very low on capacity to respond. Another participant, adequately prepared, motivated, and interested would be rated much higher. Here again, no formal scale has been devised. A recent survey sampling of 4,000 students from 20 public, private, and parochial schools all involved in an experiential learning program (out-of-classroom), found a high rate of positive agreement on a variety of experience-based program outcomes (Hedin & Conrad, 1980). The higher rated outcomes correspond with elements of Gibbons and Hopkins' (1980) scale. Hedin and Conrad's (1980) list includes the following perceived outcomes: (1) concern for fellow human beings; (2) ability to get things done adequately and smoothly with others; (3) self motivation to learn; (4) responsibility to group or class; (5) risk taking;

(6) usefullness in relation to the community; and (7) problem solving.

Questions arise from the scales and articles proposing schemes for experientiality. (1) Does the participant move up the scale of experientiality (and thus into personal and social growth experience) as a function of (a) the length of time spent doing the activity; (b) the quality of the activity; (c) the type of experience; or (d) the individual's ability to perceive and thus respond to the activity? (2) Must the participant move through each mode in sequence? or, can analytical or generative experience lead to personal and social growth without the competency and mastery levels? (3) Are some experiences more likely to produce personal and social growth than others?

A review of the available data provides insight into the complexity of measurement in experience-based programs. Nearly all data examines what effect experiences have upon the individual's behavior and attitudes. Few studies exist which examine the quality of experiential programs or compare and contrast different types of experience.

Review of Related Research

In the available research related to the field of experiential learning, one finds a far greater amount of theory than measurement. Bibliographies of various experience-based programs are available. Overviews of the experiential learning process are contained in Hamilton (1980)

and Bales (1979). Pollak (1976), Godfrey (1974), and Smith, Gabriel, Schott, and Pudia (1973) provide extensive reports on available studies of the Outward Bound Schools and related programs. Research in camping and environmental education programs are explored in summaries of a national research workshop at Pennsylvania State University (1975). Suttenberg and Poppenhagan (1980) examine related research in experiential learning for adults. Various directories of experience-based programs are also available, Kimball (1980), Harris and Wilson (1980) and the Association of Experiential Education (1980).

Most of the studies cluster around the dependent variables of academic achievement, locus of control, and self concept. For the purpose of this review, research studies measuring these three variables will be discussed. The following review makes use of the Gibbons and Hopkins (1980) scale mentioned earlier, to organize the data. The receptive and developmental modes are excluded in the research since they do not pertain directly to the research problem. From the available research, studies measuring the effects of experience on participant's perceptions and responses in the analytical and productive modes of experience are examined.

Analytical Mode

Exploratory experience. A study by Adams (1970) examined the effects of survival training on the self concepts of

nineteen coed, emotionally disturbed adolescents involved in a 30-day outdoor program. Employing the Tennessee Self Concept Scale (TSCS) and the Sixteen Personality Factors Scale (16PF), the study showed significant positive gains in self esteem and feelings of total adequacy ($p < .05$). A control group was not used.

Several years later, Heaps and Thorstensen (1974) evaluated the change in self concept immediately and one year after a survival training course. In this study, students from Brigham Young University were found to have significant positive changes in the following TSCS scales: total positive, identity, self satisfaction, behavior, physical self, moral ethical self, and personal self which remained significant at retest one year later ($p < .05$). Family self was not significant at retest whereas social self increased significantly from posttest to retest.

In the previous year, two studies examined changes in locus of control after a wilderness camping experience and found movement toward internal control using the Rotter's Internal External Locus on Control Scale. Eastman (1973) used four groups of ten adolescent boys each and found a significant internal level was attained after a three week outdoor experience ($p < .05$). Similarly, Nowicki and Barnes (1973) measured effects of a weeklong camping experience on 261 inner city teenagers, and found a

significant change toward internal control using Rotter's scale ($p < .05$). No control group was used in either of these studies.

Analytical experience. A study of Project Adventure by Fersch and Smith (1971) employed the TSCS and Rotter's scale. Participants of the tenth grade physical education course at Hamilton-Wenham Regional High School, Massachusetts were involved in an adventure based program, using initiative games which were described earlier, and stress-challenge activities typical of Outward Bound's program. The sample consisted of 104 females and 120 males during the first year and 108 females and 123 males during the second year. They results showed a high degree of internal control indicated by a significant decrease on the Rotter's scale ($p < .05$). The TSCS showed significant levels in total conflict, self esteem, total positive, positive behavior, identity, moral ethical self, and family self scale ($p < .05$). These significant gains were strongest among the female subjects.

Urley (1974) investigated the effects of nine, one-hour outdoor experience sessions similar in content to the Project Adventure program and indicated significantly more internal locus of control among participants using the Nowicki and Strickland Locus of Control Scale ($p < .05$). The experimental group contained 83 high school students and the control group had 57 students.

Productive Mode

Generative experience. Hamilton (1980) discussed various experiential learning programs which could be categorized as generative experience. The Volunteer Work Camps and Encampment for Citizenship were the focus of two studies mentioned below. The camps, allowed middle class youth a chance to participate in construction tasks in economically deprived communities, and be provided with an atmosphere of intense discussion and communal interaction.

Hyman, Wright, and Hopkins (1962) gathered data from four different groups of campers on their perception of the camp's goal and attitude ratings. The study followed a pre-post design and administered a pretest twice to one group to demonstrate that little change occurred in the time camp was not in session. Even earlier, Rieckman (1952) using the Encampment for Citizenship participants as subjects in a study found that those who volunteered for camps were more liberal before participation than other college students. These two studies were the only ones found which attempted to empirically measure the effects of a generative experience.

Challenge experience. Research in this area is dominated by work related to the Outward Bound Schools. Smith (1972) found an improvement in the post-experience and daily attendance records which was significant for high school students involved in an Outward Bound experience lasting for three weeks ($p < .05$). There was no significant

improvement in academic achievement measured by grade point average for high school students in an Outward Bound-type of experience of 23 days ($p < .05$).

Borstelmann (1969) used the Rotter's scale to measure the change in locus of control as a result of participation in an Outward Bound course. A significant increase towards internal control was found but no control group was used ($p < .05$). Stremba (1977) measured the effects of an Outward Bound program on locus of control with an experimental group of 13 male and female subjects and a control group of 27 male and female pre-enrolled subjects. No significant changes were found in locus of control. Stremba indicated a "ceiling effect" may have been caused by students achieving a high degree of internal control on the pretest, even to the extent that no effects could be measured from the experience.

Clearly the vast majority of challenge experience research is in the area of self concept. The goals of Outward Bound as stated earlier (Medrick, 1975) include several facets of self concept. Perhaps the most widely used self concept measure in this area of experience-based programs is the TSCS. Jones (1978) measured the effects of a 23-day Outward Bound-type experience as mentioned earlier. He found significant results on two of the 12 scales used; physical self and personal self ($p < .05$). The sample consisted of 170 students in three groups: the experimental

group, a physical education class, and a group of academic control subjects. The study used a pre to post design and is one of the soundest studies to be found, due to the use of two control groups. Wetmore (1972) recorded a significant positive change in self concept using the TSCS, but this change decreased after three months ($p < .05$). During the summer of 1969, Wetmore measured the effects on self concept of a 26-day Outward Bound experience on 291 male adolescents. A major weakness of this study, however, was that the participants were not matched with a control group.

Risk (1976) using only 11 subjects who, after taking a ten-week wilderness course, volunteered for a 12 day experiential wilderness challenge, found significant TSCS changes on the following scales: total positive, self satisfaction, physical self, and moral ethical self. The 16 PF was also used, and significant changes were found for defensive positive and general maladjustment ($p < .05$). There was no control group. Nye (1976), in a study using 82 subjects in a group participating in a 21-day Outward Bound course, found significant changes ($p < .05$) on nine of the TSCS scores: identity, behavior, family self, social self, total positive, moral ethical self, physical self, personal self, and self satisfaction. A control group of 78 subjects participating in a non-remedial summer school program was used for comparison.

In challenging experience research using scales other than the TSCS to measure self concept, Koepke (1973) found significant results with the Gough Adjective Checklists on 12 of the 23 scales ($p < .05$). Similar results were found by Clifford and Clifford (1967) using the Gough Adjective Checklists. Leiweke (1976) used the Personality Orientation Inventory (POI) and found significant positive changes in self acceptance and self actualization from students involved in an Outward Bound course ($p < .05$).

Statement of the Problem

Studies cannot be found which show changes in academic achievement, locus of control, or self concept as a result of involvement in developmental mode experiences. Nor are any clear studies found in the generative (level six) experience area. However, the research mentioned above would seem to indicate that many programs categorized in the analytical and productive modes are effective in producing personal and social growth.

In an attempt to measure the personal and social growth potential of a non-risk, level six, generative-based experience, a camping-construction project was designed. This experience would contain many elements characteristic of the Outward Bound challenge-type experience (wilderness skills and camping) and the experience associated with the analytical mode (problem solving). However, activities associated with risk were not a part of the experience

(e.g. rock climbing). An effort was made to answer the following questions: (1) Does the generative-construction experience produce any change in the cognitive behavior of the participants? (2) Is there a measurable change in the extent to which participants in a generative-construction experience feel they are in control of their lives (internal) or feel their lives are governed by chance happenings (external)? (3) Is there a genuine, measurable, beneficial effect of a generative-construction experience upon the self concepts of the participants?

CHAPTER II

METHOD

Description of School

The Webb School of Bell Buckle, Tennessee is a private, independent, coeducation, day and boarding high school for students grades seven through twelve. The school is located in rural Middle Tennessee and has a population of 130 boarding students and 100 day students. The faculty numbers 26 persons. The school's primary curriculum is college preparatory with 99 percent of the graduates seeking further studies in four year colleges. Socioeconomically, students are primarily white, middle class, and demonstrate average to above-average results in academic testing for the school year 1980-1981. The tuition cost for a boarding student is approximately $5,200 per year.

In 1970, the Webb School began an Outward Bound Wilderness program. Shulze (1973) gives a brief description of the program which ran for two years. During the spring of each of the years approximately 15-30 seniors were sent to the North Carolina Outward Bound school to participate in a standard three-week course.

In 1979, the Webb School hired the experimenter to begin an outdoor experiential program. This program, Outer-limits, is a voluntary extracurricular activity open to all Webb School students. The program has an on-campus component

(wilderness skills, first aid, adventure course, and high ropes course), and an off campus component which offers weekend trips, camping, backpacking, white water rafting, downhill skiing, rock climbing, as well as other experientially based outdoor activities.

Subjects

The sample for the study consisted of 23 students from the Webb School, 16 males and seven females. There were seven seniors (five males and two females), six juniors (four males and two females), four sophomores (two males and two females), one freshman (male) and five eighth graders (four males and one female). Boarding students numbered 18 and there were only five day students in the sample. All subjects were from white, middle class families.

Procedure

The total time spent outdoors (six nights and nine days), wilderness skill taught, and the construction of a 6 m x 6.6 m shelter composed the independent variables involved in the study. The variables were expected to show effects in each subject's academic performance, as it pertained to grade point average, locus of control as measured by Rotter's scale, and self concept as measured by the TSCS.

The pretest-posttest control group design, detailed by Campbell and Stanley (1963) was utilized to measure the effects of the independent variables. Randomization occurred

by blocking, or assigning subjects to matched pairs and randomly assigning one member of each pair to each group. The pretest-posttest, control group design controls for all seven internal validity threats: history, maturation, testing, instrumentation, regression, selection, and mortality. The interaction of testing and treatment, an external validity threat, was controlled to the extent that both experimental and control groups were pretested and posttested at the same time. The design did not control the threat focused on selection and treatment, since a small, unique, population was used. In addition, reactive arrangements may have posed an external validity threat since subjects were fully aware their test results would be used for research, although it was not explicity stated to the students what was being measured.

The selection of subjects involved in the experience was completed in the following method. A general announcement was made during three separate school assemblies in December, 1980. Students were invited to volunteer for a winter camping experience which would take place in January and February of 1981. Twenty-three students volunteered. The subjects attended an initial meeting where they were divided into two groups--a January and a February group--by matching subjects on two variables, sex and grade, and randomly assigning one member of each pair to each group. The January experience took place on the 9th-11th, 16th-18th,

and 23rd-25th of that month. This group served as the experimental group. The February group was scheduled for a trip in the middle of that month.

A waiver agreement acknowledging the possibility of injury as a result of the camping-construction trip and releasing the school and the experimenter from liability, was signed by each subject's parents (Appendix A). All parents also signed a form releasing each subject's grades and scores on the standardized tests given.

All subjects met during the first week of January for the pretest. Subjects were given the Rotter's scale and the TSCS. The academic averages for each subject were obtained for the fall semester of 1980 as a pretest measure. A numerical mean of each subject's academic grades was secured for comparison.

The experimenter served as the primary adult and instructor in the experiental phase of the experience. Several faculty members, staff of Webb School, and local friends participated at various times during the experience in a variety of roles. Some camped overnight, others worked in construction, while still others provided valuable advice and construction tips during the building phase. The experimenter was the only adult participating in the entire experience with the subjects. The construction and camping took place approximately two miles southeast of the Webb School campus. The land is owned by a faculty member who

granted permission for subjects, under supervision of the experimenter, to camp on his land, cut cedar poles as needed, and construct a pole shelter on the northeast hill.

A preliminary drawing of the building was completed by Webb School's art teacher from a verbal description of the shelter by the experimenter (Appendix B). The drawing showed a shelter, 6 m x 6.6 m square, made of green, rough-cut oak, hickory, and poplar boards. An initial lot of several hundred board feet of lumber was taken to the hillside. All materials were carried to the building site by the subjects and the experimenter.

On the first weekend, subjects met at 4:00 P.M. Friday and backpacked the two miles to the building site. Food and camping equipment were distributed to each subject for the hike. On Friday night, tents were set up, firewood gathered, fires built, a group tarp constructed and supper prepared. Simultaneously and consequently, wilderness skills introduced included backpacking technique, types of firewood, fire construction, setting up tents, and cooking. Because temperatures dipped below -12° C on Friday night, and Saturday morning brought snow, much of the instruction centered around cold weather survival.

Saturday morning began with subjects cooking breakfast and learning proper clean-up and sanitation. The building construction began by lining up 14 holes for the placement of the cedar poles. Other than the drawing mentioned above,

there was no formal plan for the building. Initially, the plan had been to dig the post holes by hand, but this idea had to be abandoned due to the extremely cold temperatures. A tractor was brought from school to dig the holes. In the afternoon, poles were cut and stripped of branches. The latter part of the afternoon and early the next morning, the subjects placed each pole and filled dirt in around them. Saturday evening provided a chance for informal discussion around the campfire and more talk of cold weather skills. With several subjects suffering from sore muscles, scrapes, cuts, and one minor burn, some instruction in first aid was given. Hypothermia and nutrition for cold weather survival were also discussed.

Sunday afternoon was the clean-up and the return backpack trip to school. Unfortunately, in the week that followed, Bangcock flu was contacted by nearly everyone at the Webb School. By the following Wednesday, over 100 students were reported absent with flu symptoms.

Four subjects missed the second weekend due to illness. Friday's activities were similar to the previous weekend, but with more instruction in cooking skills. Saturday morning began with laying the floor joists to support the wooden floor. When presented with a problem in construction, the group was given responsibility to solve it to the best of their ability. Saturday evening offered discussion time. Although the temperatures were considerably warmer, the

subjects decided to construct a temporary lean-to in camp to direct the wind away from the fire. On Sunday afternoon, following more floor construction, the group returned to school.

On the final weekend, there was once again a full group. Temperatures were the warmest on the third weekend. The group backpacked out early Friday afternoon in time to begin laying floor boards. All day Saturday and most of Sunday morning was spent finishing the floor. By the end of Sunday, the supporting structure for the rafters was completed. On Sunday afternoon, after the clean-up, the group made the final two mile walk back to school.

Following the third weekend, a posttest session was held with both the experimental and control groups together. Locus of control and self concept scales were administered. An academic grade point mean was obtained from the mid-term grades posted the week following the posttest session. The total time between pretest and posttest was 21 days.

The control group did not participate in any type of group experience during the 21-day period. The only difference in Webb School experience between the control and experimental group, during the 21-day period, was the three weekend camping-construction trips. The control group did participate in several building work days during February, but did not camp. The group made a decision not to camp due to conflicts in schedules.

Testing Instruments and Academic Measuring Methods

The measurement of academic achievement consisted of each subject's grade mean for academic courses (physical education and art were excluded). Numerical grades were recorded for each subject during each six weeks by the school. The Grade means for fall semester, 1980 were utilized as the pretest measure. Grades recorded after the first six-week grading period of 1981 served as the posttest measure.

Rotter's Internal External Locus of Control Scale (1966) was used to measure the extent to which individuals perceived themselves in control of their lives (internal) or whether they felt their lives were controlled by luck or chance (external). The scale was developed as a broad guage instrument and is thus more suitable for measuring group differences than it is for individual prediction. The test contains 29 force choice items, including six filler items. For each item, the individual reads a pair of statements and indicates the statement with which he more strongly agrees. Scores range from 0 (totally internal) to 23 (totally external) with mean scores around 11 (Rotter, 1971). The scale shows satisfactory test-retest reliability and high internal consistency (Rotter, 1966). Rotter (1966) also shows his scale to correlate with other measures of locus of control, namely questionnaires, Likert Scale, interview assessments and ratings from story completion.

The data indicates low correlations of locus of control with intelligence, social desirability, and political liberalism. The construct validity of the Rotter's scale is indicated by predicted difference in behavior for individuals above and below the medium score, or from correlations using behavioral criteria (Rotter, 1966).

Fitts' (1965) Tennessee Self Concept Scale (TSCS) was the test used to measure what effects the camping-construction experience had upon subjects' concept of self. The scale consists of 100 self descriptive statements: 90 items for all the variabels and ten items for the self criticism scale. There were five choices for each question ranging from "1" for completely false to "5" for completely true. The TSCS provides measures on 24 variables. For purpose of this research, only 12 variables were utilized. Excluded were the following: six empirical scales, three variability scales, true/false scale, distribution scale, and the number of deviant signs scale. These scales were deemed by the experimenter to have little to do with the effects of the experience. In addition, studies of normal populations employing the TSCS used the following twelve variables: self criticism, total positive, identity, self satisfaction, behavior, behavior, physical self, moral ethical self, personal self, family self, social self, and total conflict (Jones, 1978; Heaps & Thorstensen, 1974; Fersch & Smith, 1971; Wetmore, 1972; Risk, 1976). The scales are described below.

The self criticism scale consists of mildly derogratory statements most people would admit to being true of themselves. Low scores generally indicate denial and defensiveness in the individual while high scores are normal. The total positive score represents the overall level of self esteem. High scores represent people who generally like themselves, feel they have value, worht, and confidence. Low scores indicate a person doubting their own worth, feeling anxious, depressed and unhappy. Low self criticism and high total positive scores are thought to be a result of defensive distortion. The identity score represents how the individual perceives what he is--physically, morally, and socially. The self satisfaction score indicates how the individual feels about himself, and the behavior score indicates how he perceives what he does and how he acts. The physical self scale represents the individual's view of his body and his physical appearance, skills and sexuality, while the moral ethical self scale indicates how he feels about moral worth, feelings about religion and God, and his thoughts about good and bad. The personal self score measures the sense of personal worth, feelings of adequacy, and the individual's evaluation of his personality. In the family self score, the individual's feelings of adequacy, worth and value in relation to his family is measured. The social self scale represents the self perceived in relation to others. More specifically, the individual's feelings of adequacy in social interactions are

measured. The net conflict score measures how the responses to positive items differ from responses to negative items in the same area. The final score used, total conflict, indicates normal functioning with low scores. Individuals who show signs of confusion and contradiction with regards to self perception score high on the total conflict scale.

The TSCS test-retest reliability coefficients range from .62 to .92 on all major scores (Fitts, 1965). Individuals retested over long periods of time show "remarkable similarity of profile patterns" (Fitts, 1965, p. 15). Intercorrelations of scale scores reveal that major dimensions of self perception (self esteem, self criticism, variability, certainity, and conflict) are relatively independent of each other. Fitts (1965) notes a discrimination between a group of psychiatric patients (369) and a norm group of (626) non-patients and demonstrated highly significant differences ($p < .001$) on nearly all scores used in the TSCS. Fitts indicates a high correlation with the Minnesota Multiphasic Personality Inventory (MMPI). Ashcraft and Fitts (1964) have also shown that changes in self concept with a therapy group and a non-therapy group show significant changes in the positive direction ($p < .05$).

Hypotheses

H_1. Following participation in a three-weekend outdoor construction and camping experience, there will be no significant increase in academic achievement from pretest

to posttest within the experimental or the control group and there will be no significant difference in academic achievement when comparing the two groups.

H_2. Following participation in a three-weekend outdoor construction and camping experience, there will be no significant change in locus of control, internal or external, between the experimental and control group and there will be no significant change in locus of control, internal or external, within either group pre to post.

H_3. Following participation in a three-weekend outdoor construction and camping experience, there will be no significant chance when comparing the experimental group to the control group, or within either group, pre to post, and any of the 12 TSCS scores. a) There will be no difference between or within groups, pre to post, on the self criticism score. b) There will be no difference between or within groups, pre to post, on the total positive score. c) There will be no difference between or within groups, pre to post, on the identity score. d) There will be no difference between or within groups, pre to post, on the self satisfaction score. e) There will be no difference between or within groups, pre to post, on the physical self score. g) There will be no difference between or within groups, pre to post, on moral ethical self score. h) There will be no difference between or within groups, pre to post, on personal self score. i) There will be no difference between or within

groups, pre to post, on the family self score. j) There will be no difference between or within groups, pre to post, on the social self score. k) There will be no difference between or within groups, pre to post, on the net conflict score. l) There will be no difference between or within groups, pre to post, on the total conflict score.

Statistical Treatment

Analyses of variance were computed on the pre to post grade means for both groups, the pre to post scores from the Rotter's scale for both groups, and the 12 pre to post scores from the Tennessee Self Concept Scale for both groups. A .05 level of significance was used to either accept or reject the null hypotheses.

CHAPTER III

RESULTS

The results of the data collection and analyses in this study will be presented in the following order: (1) Analysis of grade point means within the experimental and control groups and a comparison between groups. (2) Analysis of the Rotter's Internal External Locus of Control Scale within the experimental and control groups and a comparison between groups. (3) Analysis of the Tennessee Self Concept Scale (TSCS) results within the experimental and control groups and a comparison between groups on each of the 12 scales used. All data compilation, card punching, and processing for statistical analysis was completed at Middle Tennessee State University Computer Center, Murfreesboro, Tennessee.

The academic grade point means pre and post are presented for both groups in Table 1. The analysis of variance for grade means within and between the experimental and control groups are presented in Table 2. The statistical analysis indicated no significant change in academic performance as measured by grade point means. Hypothesis$_1$ was accepted.

Table 1

Mean Scores

Academic Grade Means

Group	Pretest	Posttest
Experimental	81.21	78.30
Control	79.31	80.49

Table 2

Analysis of Variance

Grade Point Means

Source	SS	df	MS	F
Groups (A)	0.246400	1	0.246400	
Between Error	18811.68	21	86.2704	
Prepost (B)	8.65766	1	8.65766	
AB	48.0095	1	48.0095	3.99
Within Error	252.700	21	12.0334	

Mean scores for Rotter's Locus on Control Scale are presented in Table 3. Analysis of variance for the Rotter's

scale are presented in Table 4 data indicated no significant difference in locus of control between experimental and control groups. However, a within group difference, pre to post, was found to be significant ($p < .001$). Hypothesis$_2$ was accepted.

Table 3

Mean Scores

Rotter's Locus of Control Scale

Group	Pretest	Posttest
Experimental	8.9	10.9
Control	7.5	11.2

Table 4

Analysis of Variance

Rotter's Internal External Locus of Control Scale

Source	SS	df	MS	F
Groups (A)	3.80501	1	3.80501	
Between Error	422.152	21	20.1025	
Prepost (B)	92.1449	1	92.1449	18.909*
AB	7.97101	1	7.97101	1.636
Within Error	102.333	21	4.87302	

*$p < .001$

The Tennessee Self Concept Scale mean scores are presented below in Table 5. Analysis of variance for the 12 scores used on the TSCS are presented in Table 6. There does not exist a significant difference between experimental and control groups on any of the scales. There were also no significant differences within groups, pre to post, for 11 of the 12 scales. The identity score (c) showed a significant pre to post difference ($p < .02$). Sub-hypotheses a, b, d, e, f, g, h, i, j, k, and l were accepted. Sub-hypotheses c was rejected.

Table 5

Mean Scores

Tennessee Self Concept Scale

Group	Experiential		Control	
Scales	Pre	Post	Pre	Post
TSCS				
Self Criticism	38.9	39	36.16	36.25
Total Positive	329.9	318.78	335.5	331.41
Identity	119.45	111	124.00	117.5
Self Satisfaction	106.09	105.27	101.41	106.25
Behavior	104.36	102.45	108.08	107.66
Physical Self	69.09	64.36	66.58	65.66
Moral Ethical Self	65.63	64.09	67.16	65.83
Personal Self	63.36	62.27	66.08	66.25
Family Self	65.63	66.72	67.08	66.58
Social Self	66.18	61.27	66.58	67.08
Net Conflict	-0.45	4.5	0.33	6.7
Total Conflict	34.89	34.0	32.16	30.75

Table 6

Analysis of Variance

Tennessee Self Concept Scale

A. Self Criticism	SS	df	MS	F
Groups (A)	86.5654	1	86.6554	1.746
Between Error	1040.91	21	49156.73	
Prepost	8.71213	1	8.71213	
AS	1.63513	1	1.63513	
Within Error	293.193	21	13.9959	
B. Total Positive				
Groups	760.573	1	760.573	
Between Error	44682.7	21	2127.75	
Prepost	504.941	1	504.550	1.009
AB	237.550	1	237.550	
Within Error	10508.3	21	500.394	
C. Positive Score--Identity				
Groups	350.093	1	350.093	1.252
Between Error	5870.86	21	279.565	
Prepost	641.745	1	641.745	6.185*
AB	10.9625	1	10.9625	
Within Error	2178.86	21	103.755	
D. Positive Score--Self Satisfaction				
Groups	39.2200	1	39.2200	
Between Error	8938.61	21	425.648	
Prepost	46.2615	1	46.2615	
AB	91.6528	1	91.6528	1.059
Within Error	1817.65	21	86.5548	
E. Positive Score--Behavior				
Groups	228.926	1	228.926	
Between Error	5522.94	21	262.997	
Prepost	15.5219	1	15.5219	
AB	6.39147	1	6.39147	
Within Error	1197.91	21	57.0435	

F. Physical Self	SS	df	MS	F
Groups	4.16354	1	4.16354	
Between Error	1666.49	21	79.3566	
Prepost	91.4073	1	91.4073	2.322
AB	41.6681	1	41.6681	1.059
Within Error	826.549	21	39.3595	
G. Moral Ethical Self				
Groups	30.7352	1	30.7352	
Between Errors	4237.09	21	201.766	
Prepost	23.7813	1	23.7813	
AB	0.12911	1	0.12913	
Within Error	551.657	21	20.2713	
H. Personal Self				
Groups	128.698	1	128.698	
Between Errors	2709.61	21	129.029	
Prepost	2.45125	1	2.45125	
AB	4.53821	1	4.53821	
Within Error	620.288	21	29.5375	
I. Family Self				
Groups	4.87220	1	4.87220	
Between Errors	2587.61	21	123.219	
Prepost	1.00198	1	1.00198	
AB	7.26825	1	7.26285	
Within Error	1130.95	21	53.8550	
J. Social Self				
Groups	110.738	1	110.738	1.307
Between Error	1778.70	21	84.6999	
Prepost	55.7846	1	55.7846	2.284
AB	83.9585	1	83.9585	3.437
Within Error	512.955	21	24.4264	
K. Net Conflict				
Groups	54.1104	1	54.1104	
Between Error	7706.55	21	366.978	

	SS	df	MS	F
Prepost	467.704	1	467.704	3.873
AB	21.9649	1	21.9649	
Within Error	2294.48	21	120.762	

L. Total Conflict

Groups	99.9409	1	99.9409	
Between Error	2381.28	21	113.394	
Prepost	14.3322	1	14.3322	
AB	1.02783	1	1.02783	
Within Error	1180.28	21	56.2036	

*$p < .02$.

CHAPTER IV

DISCUSSION

In the first hypothesis, where grade point means were compared pre to post, no significant changes were found between or within either the experimental or control group. These results were similar to those obtained by Jones (1978), who used grade point means for comparison. The nine-day experience occurring between pretest and posttest may be assumed not to represent an adequate amount of time for any change to occur in grade means. Perhaps achievement tests could have been employed to investigate changes in the cognitive area. It would not seem appropriate to measure attendance (Smith, 1972) as an indication of academic improvement since the boarding school situation provides a tighter control against absenteeism than do public schools (the total numbers are smaller in private schools and by definition, boarders live on campus). Winter may have had some influence on the grade point means since the experimenter has observed large numbers of students with lower overall grade point means during the time of the year when there are reduced physical activity (outside), feelings of being "closed in", cold and damp weather, and other factors affecting academic performance.

Testing for the locus of control hypothesis showed no between group difference in scores on the Rotter's scale. A pre to post, within group difference was significant

($p < .001$). Both group means changed in the direction of external control as indicated in Table 3 above. The findings of no significant between group scores were similar to Stremba (1977), who theorized a "ceiling effect" of internal scores allowing no room for any change. A "ceiling effect" does not seem to be the case in the present study since locus of control score means for both groups increased (moved external). If there had been a "ceiling effect", no change in scores should have been noted.

Several studies did find significant ($p < .05$) changes in locus of control (Urley, 1974; Fersch & Smith, 1971; Eastman, 1973; and Nowicki & Barnes, 1973). No studies were found which showed score changes toward external control. Perhaps, as with academic means, the winter weather affected the subjects' view of their locus of control. Temperatures ranging from -12° to 2°C during the experience may have fostered feelings in these subjects of not being in control of their lives (internal) and consequently they may have thought luck or fate (external) had more control in their lives. In addition, with four subjects absent during the second weekend with flu symptoms, subjects may have been led to believe that outside events controlled their lives more than they themselves were able to. Of course, this explanation is highly speculative, but it offers a possible reason as to why both group scores moved in an external direction.

In testing the effects of a camping and construction experience on the concept of self, the analysis of variance showed no between group difference on any of the twelve TSCS scales. Only one scale, identity, showed any pre to post within group difference. Several studies (Jones, 1978; Wetmore, 1972; Risk, 1976; and Nye, 1976) all found significant results on at least two of the 12 subscales used. Their results would seem to suggest that programs involving subjects for longer periods of time (21 to 28 days, inclusive) were more successful in affecting self concept change than programs which offered less time for involvement. It appears that the more time involved in the experience allows subjects a better chance to change self concept since there are more activities offered as well as much more time for interaction with the group in which the subject is involved.

It would seem appropriate to hypothesize that if the present study had allowed for participation on all of the 21 days between pretest and posttest, then significant changes between groups may have been noted. Several factors may have allowed for this change. Subjects in a generative experience, similar to the one described earlier, which allowed for more time spent in participation on a project, would be able to better see the results of their work. With regards to the project described in this thesis, subjects involved for the full three weeks would have had ample time to complete their project. As it was, the project was

incomplete at the end of the designated time schedule. This incompleteness may have affected subjects' thoughts regarding self. In addition, if subjects had been required to camp for 21 days straight, while working on the project, there would have been more time for instruction of wilderness skills and much more time for subjects to interact with other members of the group. Having learned wilderness skills better, subjects may have thought themselves more in control of their environment and thus more self confident. This self confidence might have showed in increases of several of the TSCS scores. More interaction between group members as a result of more time spent in the outdoors may have been indicated through greater social self scores. Due to the school's schedule it was impossible for subjects to be away from their classes for three full weeks. This fact limited the time schedule for the experience. The same results (as a full 21-day experience) may have been achieved by having the same group of subjects participate each weekend until the completion of the project. This, however, could not be incorporated into this study due to conflicts in both subjects' and the experimenter's schedules.

The post research implications are quite clear. Experiential programs do contribute to changes in self concept and locus of control. Some programs, such as Outward Bound, appear to affect changes more rapidly than others. These findings would suggest that quality of experience and time

spent involved participating may be key elements in affecting desirable changes in self concept and locus of control. Indeed further study is needed with regards to both generative and challenge experience, altering length of time and quality of experience. A study designed to compare a wilderness experience, involving risk activities (challenge), with a similar experience involving construction activities (generative) might also allow for clearer insight into those elements of experience which affect self concept, locus of control and academic achievement. Clearly, research measuring the effects of experience on participants is in the pioneering state. Clean, sound designs are needed to give credibility to the many effects experience is thought to have on subjects. Studies need control groups and emphasis on internal and external threats. The possibilities for research are endless and the implications of that research and its effects on subjects can provide strength to experiential theory and credibility to the whole realm of experiential learning.

In the preceding study, the effects of a camping and construction experience were assessed on subjects' academic improvement, locus of control and self concept. A review of theory and research in the experiential learning field was included. The effects of the generative experience (camping and construction) on the 23 subjects were found not to be significant ($p < .05$) for all hypotheses, except for the

comparison within the experimental and control groups for locus of control and the identity score of the self concept scale. Implications of the results were discussed and the need for further empirical studies in the field of experiential learning was indicated.

Appendix A

Permission Form

Appendix A

Permission Form

I hereby grant permission for _____ (student's name) to participate in three weekend camping trips. I understand there are certain risks involved in overnight camping trips and I release Webb School and Lee Gillis from all liability for any accidents which may occur while said student is involved in these camping trips.

_____ Date

_____ Name of Parent or Guardian

Statement of Confidentiality

I hereby grant permission for _____ (student's name) to receive the Tennessee Self Concept Scale and the Rotter's Internal External Locus of Control Scale as part of Lee Gillis' Masters Thesis research at Middle Tennessee State University. I also release the scores from each of the above mentioned tests as well as my student's grade point average for use in this research. I understand that only the scores and not the student's name will be used in the research.

_____ Date

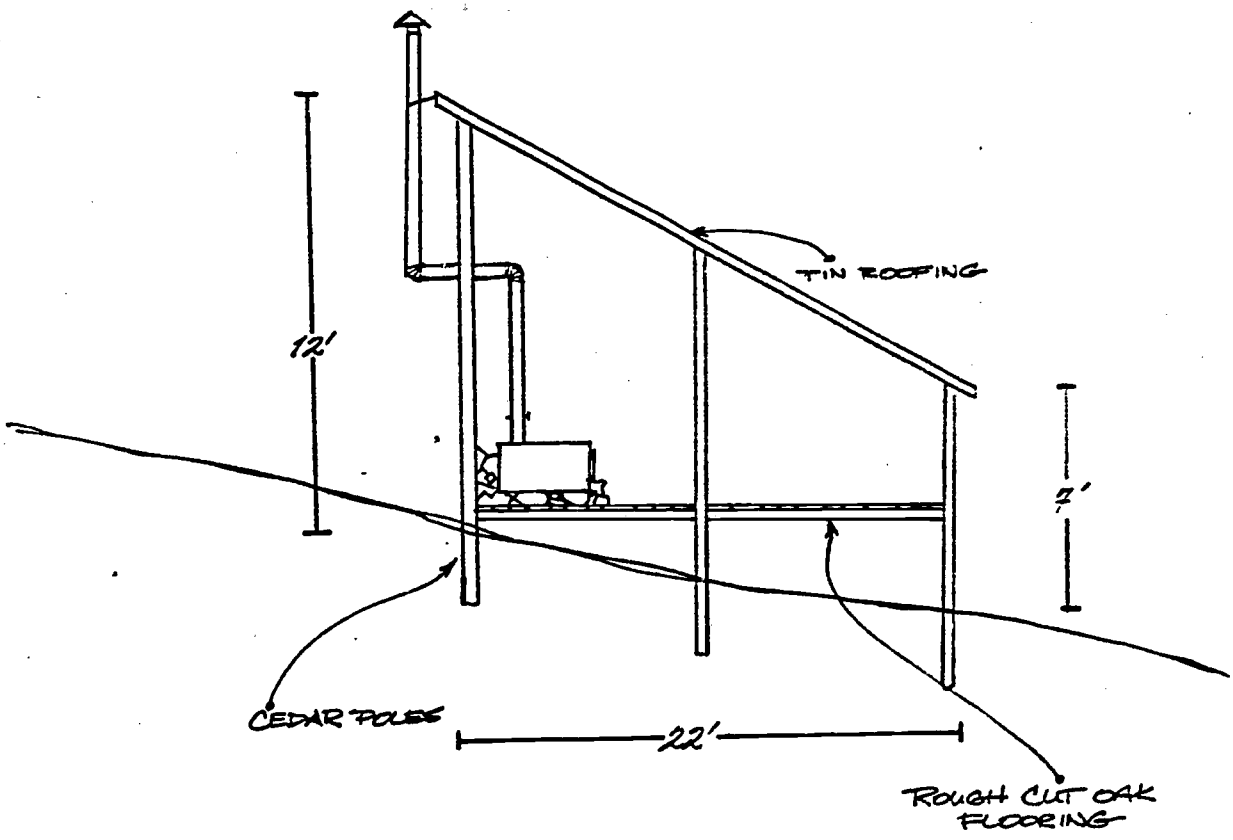
_____ Name of Parent or Guardian

Appendix B

Design of Construction

Appendix B

Design of Construction



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